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THE JOURNAL OF EDUCATION AND AGRICULTURE,



PROVINCIAL NORMAL, AND MODEL SCHOOLS, TRURO, N. S.

FOR THE PROVINCE OF NOVA SCOTIA.

TABLE OF CONTENTS.

EDUCATIONAL DEPARTMENT.		PAGE.	AGRICULTURAL DEPARTMENT.		PAGE.
I. THEORY OF EDUCATION.—Moral Education—the Principles and Precepts of the Bible must not only be explained, but reduced to practice, -		81	II. PRACTICE OF AGRICULTURE.—Economy of Fodder, -		89
II. PRACTICE OF EDUCATION.—Mental Arithmetic, -		83	On the First Principles of Agriculture, -		90
III. OFFICIAL NOTICES.—Intimations to Clerks of School Boards, -		84	Fixed Facts in Agriculture, -		91
Normal School, -		84	Dairies and Bone Manure, -		92
Model School; -		84	Fowls—Food, &c. -		92
Qualifications of Teachers, -		84	Annual Address—by W. Ferguson, -		93
IV. EDUCATIONAL INTELLIGENCE.—A comprehensive System of National Education, -		87	OFFICIAL NOTICES.—Journal of Education and Agriculture, -		94
V. REVIEWS OF SCHOOL BOOKS.—The Geography and History of Nova Scotia—by J. B. Calkin, -		89	Agriculture in Nova Scotia—Answers to Queries, -		94
			III. AGRICULTURAL INTELLIGENCE.—Lord Mulgrave's Speech at the Masonic Banquet, -		95
			Exhibitions, -		96
			ADVERTISEMENTS, -		96

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No. 6.

EDUCATIONAL.

1.—THEORY OF EDUCATION.

MORAL EDUCATION—THE PRINCIPLES AND PRECEPTS OF THE BIBLE MUST NOT ONLY BE EXPLAINED. BUT REDUCED TO PRACTICE.

In our discussion of this important subject, we have shown that the Bible should not only be used, but explained. We expatiated at considerable length on this latter point,—showing, first, the necessity of some explanation being given if the conscience is to be enlightened and directed, and, then, the sort of explanation, that the great end of moral education may be accomplished. But all this instruction and intellectual training is but preparatory, is to be regarded in no other light than as a mean leading to an end, even the reducing to practice the principles and precepts of the Bible in the every day intercourse between teacher and taught, between scholar and scholar. We may succeed, by the analyses of terms and of clauses, or by the pictorial representation of certain passages, to exhibit clearly and forcibly, a thought to the understandings of the young, or to inscribe it vividly upon their tender hearts,

but all this will prove of little or no avail, unless it impel to action, unless it control and regulate conduct. We would not undervalue the benefit of sound knowledge; still less when it is communicated in a way calculated to expand and strengthen some of our intellectual powers. But we do depreciate it when it is made an end, an intellectual regale, without any ulterior object or aim—a mere speculation floating in the brain,—without being attended with any practical results.—Much as we value knowledge, or the due cultivation of the intellectual powers, it is only when the one or the other of these is directed to its legitimate purpose, or to the furtherance of those great ends for which the Creator intended, that they are possessed of real intrinsic worth, of lasting benefit.—To secure all this, conscience must be enlightened, quickened and rendered increasingly sensitive. For this purpose, it must not only be brought into direct and immediate contact with the Bible, its only infallible guide, by directory and support, but it must be daily and hourly exercised. When conscience, enlightened and controlled by this standard, gives forth its dictate, whether in the way of requirement or prohibition, it must be implicitly obeyed—obeyed not once or twice, but aye and until the habit of obedience in that particular thing is secured. The being convinced of a certain thing being right, or the doing of it occasionally, or by fits and starts, will not effectuate or bring about the formation of the habit, it must be regularly and steadily persevered in; it must be

repeated and re-repeated, until it has been woven into the very nature of the individual, until it has become part and parcel of himself. To see the effect of such a course on our physical nature we have only to notice the walk of the sailor, the shoemaker, the hotel-waiter, and the man of sedentary employments. To witness its effects intellectually we have only to contrast the retiring student and the merchant of every activity on 'Change. No man mistakes which of the two classes of persons he is addressing. Originally their minds may have been similarly constituted, but habit has made the difference. "And so it is," says Stowe, "in the moral department. In it there are strong marks of distinction in every grace and virtue, arising from nature and the operation of religious principle, but these are greatly weakened or strengthened by exercise. It is so in regard to any bad propensity; e. g., evil speaking, covetousness, pride, and a love of contention; it is likewise so in regard to the graces of humility, generosity, courteousness, etc.; all acquire strength by exercise; and thus each good or bad propensity is strengthened, and eventually produces the force of habit. In fact, every succeeding act of mind or body, whether good or evil, is strengthened by the preceding one. If such be the force of habit physically, intellectually and morally, who can calculate the mighty importance of early training to all that is right, lovely and of good report."

To come to the practical principle. The child who is naturally combative exhibits a disposition to fight and quarrel with his playfellows, and this feeling is strengthened by exercise. Let him enter a moral training school, however, in which such feelings are not permitted to be exercised, but where, on the contrary, they are directed to what is noble and useful, and shortly the power of self-control will not only grow into a habit, but the feeling or the disposition itself will be greatly subdued. A boy of this description, during the first week of his course, may strike and thrust right and left, but his blows not being returned, and now breathing a more moral atmosphere than what he had been accustomed to, and participating in a portion of its spirit from the power of sympathy, joined with a more enlightened conscience, his whole conduct is quickly changed into a more Christian and moral habit. This is the experience of all moral trainers, in every part of the world in which they are located."

From these statements it must be apparent to all, that there exists a wide difference between moral instruction and moral education, between moral telling and moral training. The one is necessary, indispensably necessary for the other, but it is so, entirely in the relationship of means and end. In insisting upon the children attending school observing a certain course, aye, and until they acquire the habit, a certain authority must be claimed and maintained; this authority must be of an enlightened character—an authority evidently arising from the very constitution of things, and from the plainest dictates of revelation; and hence moral instruction and moral education must ever go hand in hand. The child must be constrained by the highest motives and arguments to the abandonment of this vice and the practice of that virtue; and this must be patiently persevered in by a repetition of the act, until the one is overcome and the other established into a habit.

True, it is not in the power of mortals to impart a true, genuine love for any particular grace or virtue, or for any specific moral act or course of moral acting. This is the work of the Almighty; this is the prerogative of Divinity. But

God usually carries on this work by means, by secondary agency. And what are the means he has promised to render efficacious in the moral education of the young? Is it mere instruction, or is it instruction combined with exemplification? It is, both these, but it is also something above and beyond, viz., the *doing* of the thing. "Train up a child in the way he should go, and when he is old he will not depart from it." And what is the import of this term? What does the gardener mean by training the apple or pear tree to the wall or espalpeen? Does he merely tell the slender twig that it must grow in this or that breach, and show how it ought to do so? No. He takes the shreds, the nail and the hammer, and he fastens it to the very spot where he wishes it to grow and bear fruit. Again, what is meant by the training of a young horse either for the saddle or for harness? Is it merely to tell the animal how to do what is required, or to show it how to do it? It is more, it is to make it do the thing wanted. But, again, what is meant by training up a youth to a certain trade or business or profession? Is it merely to tell him the names and the uses of the tools, and to show him how he ought to handle them? He must do all this, but he must do a great deal more. He must make the apprentices take the tools into his own hand, and working with them, aye, and until he arrive at proficiency in their use. This is training in the common acceptation of the term, and it possesses exactly the same import both mentally and morally. To train up a child in the way he should go, means, then, plainly, not only that we impart sound, wholesome instruction, and set before it a consistent Christian example, but that we compel it to do what is right, and that we restrain it from doing what is wrong; and this is the instrumentality which God has pledged his faithfulness to render effectual. And here we apprehend lies the grand cause of the comparative want of success which attends the moral education of the young. Parents and Teachers and others seem to imagine that they have done all that is necessary when they have imparted a thorough moral instruction, and especially when that instruction has been accompanied by a consistent example. But this, however requisite, is not enough. They must train in the sense we have just explained, and without that, they have no covenant warrant to expect the Divine blessing. We may rest satisfied, then, that there is no want of faithfulness on the part of Jehovah. Sooner shall the everlasting mountains be upturned from their deep-rooted foundations, sooner shall the throne of the Eternal crumble into atoms, than this attribute be encroached on.—When, therefore, failure attends our instrumentality, when the promise is unfulfilled, it may be indubitably concluded that the means apprehended by infinite wisdom have not been called into requisition.

Let no one say that this means, this training process, is harsh, or severe, or savouring of tyranny. We know that to not a few in this land of boasted liberty the very mention of the word compulsion falls gratingly upon their ears. What say they? Would you have us to make very slaves of the young, to treat them with all but despotic rule, to compel them to act, it may be, in direct antagonism to their will. They have now entered upon their teens, and therefore are capable of judging for themselves. It would afford us the highest possible gratification if they would choose the right and walk therein; but as to our using any authoritative, coercive measures, to make them do so, it were altogether out of the question. Such are the opinions of not a few in this and other

countries on this matter—opinions as repugnant to the best interests and truest happiness of the parties themselves as it is to the whole doctrinal and preceptive of Christianity.—There is no despotism, but the veriest freedom, in compelling the young, by the presentation of motives congenial to their nature, to repeat the right and to avoid the wrong, aye, and until the habit is formed, and the character established.—Whatever man may think or say, this is the course which alone meets the Divine approbation, and secures that blessing which alone makes rich.

II.—PRACTICE OF EDUCATION.

MENTAL ARITHMETIC.

[CONTINUED.]

In former numbers of this Journal the principles of Mental Arithmetic have been fully explained, from the most elementary calculations, by the aid of visible objects, to abstract numbers and the fundamental rules of Arithmetic, and thence, to practice, or the computation of the prices of articles.

Of course, much more might be said on these subjects, and we might give many other rules adapted to the endless variety of practical questions which present themselves in every day business. It is presumed, however, that those who are familiar with what we have already advanced on this subject will have little difficulty in working out for themselves particular rules to suit the peculiarities of the questions which may come before them.

We will now discuss proportion, and shew the mode of making mental calculations in this rule.

All are aware that a proportion consists of four numbers, of which, the products of the extremes and means are equal. These four numbers are denominated the first, second, third and fourth terms of the proposition.

By the principle just enunciated the product of the second and third terms is equal to that of the third and fourth; hence the common rule:—Multiply the second and third terms together, and divide the product by the first, and the result will be the fourth term. Of course, any three terms being given, the other term can be found in the same manner; thus, if the second, third and fourth terms are given, the product of the second and third divided by the fourth will give the first term.

And, again, if the first, second and fourth terms are given, the product of the first and fourth divided by the second term will give the third.

These four terms make up two ratios, namely, the first and second; and the third and fourth; or the first and third; and the second and fourth; and although in Slate Arithmetic some adhere to one of these classifications, and some to the other; in mental calculations it is advantageous to keep both before the mind, and choose that most suitable for our purpose. The following examples will illustrate this:—

$3 : 5 :: 9$. In this question we cannot reduce the ratio $3 : 5$ any lower, but the ratio $3 : 9$ is reducible to $1 : 3$.—

We therefore prefer the ratio $3 : 9$.

Again, $7 : 21 :: 6$. No reduction can be made in the ra-

tio $7 : 6$, but $7 : 21$ is reducible to $1 : 3$. Here therefore we prefer the ratio $7 : 21$.

We are now prepared to enunciate the Rule:

Find the ratio between one extreme and one mean.

The other extreme will be in the same ratio to the other mean.

Examples.

Question 1.— $6 : 17 :: 24$; here $6 : 24$ as $1 : 4$; then $1 : 4 :: 17 : 68$; $\therefore 6 : 17 :: 24 : 68$. *Ans.*

Question 2.— $9 : 12 :: 11$; here $9 : 12$ as $3 : 4$; then $3 : 4 :: 11 : 3$; $3 : 4 :: 11 : 11 \times 4 \div 3 = 44 \div 3 = 14\frac{2}{3}$; $\therefore 9 : 12 :: 11 : 14\frac{2}{3}$. *Ans.*

Question 3.— $6 : 16 :: 12$; here $6 : 12$ as $1 : 2$ then $1 : 2 :: 16 : 32$; $\therefore 6 : 16 :: 12 : 32$. *Ans.*

Question 4.— $5 : 16 :: 20$; here $5 : 20$ as $1 : 4$ then $1 : 4 :: 16 : 64$; $\therefore 5 : 16 :: 20 : 64$. *Ans.*

Question 5.— $7 : 29 :: 56$; here $7 : 56$ as $1 : 8$ then $1 : 8 :: 29 : 232$; $\therefore 7 : 29 :: 56 : 232$. *Ans.*

Question 6.— $4 : 30 :: 79$; here $4 : 30$ as $2 : 15$ then $2 : 15 :: 79 : 79 \times 15 \div 2 = 1185 \div 2 = 592\frac{1}{2}$; $\therefore 4 : 30 :: 79 : 592\frac{1}{2}$. *Ans.*

Hitherto our examples have been in abstract numbers, which are best calculated to illustrate the operation of the Rule. We may now introduce concrete numbers with equal facility.

When a ratio is instituted, between two numbers of different kinds, they must be reduced to their lowest terms, and then treated as abstract numbers.

Question 1.—If 5 lbs. of sugar cost 7 shillings and 6 pence what will 25 lbs. cost?

$5 : 25 :: 7s. 6d.$; $5 : 25$ as $1 : 5$ then $1 : 5 :: 7s. 6d. : £1 17s. 6d.$; $\therefore 5 : 25 :: 7s. 6d. : £1 17s. 6d.$ *Ans.*

Or thus—

$5 : 25 :: 7s. 6d.$; $5 : 25 :: 90d.$; $5 : 90$ as $1 : 18$ then $1 : 18 :: 25 : 450$; $\therefore 5 : 25 :: 90d. : 450d.$ $= 37s. 6d.,$ or $£1 17s. 6d.$ *Ans.*

Question 2.—If 9 lbs. of coffee cost 10s. 6d. what will 47 lbs. cost?

$9 : 47 :: 10s. 6d.$; $9 : 47 :: 126$; $9 : 126$ as $1 : 14$ then $1 : 14 :: 47 : 658$; $\therefore 9 : 47 :: 126 : 658$; and 658 pence are $£2 14s. 10d.$ *Ans.*

Question 3.—If 63 lbs. tea cost £7 17s. 6d. what will 9 lbs. cost?

$63 : 9 :: £7 17s. 6d.$; $7 : 1 :: £7 17s. 6d. : £1 2s. 6d.$ *Ans.*

Or thus—

$63 : 9 :: £7 17s. 6d.$; $63 : 9 :: 1890$ pence; $63 : 9$ as $7 : 1$ then $7 : 1 :: 1890 : 270$ pence, or $£1 2s. 6d.$ *Ans.*

Or thus—

$63 : 9 :: 1890$; $63 : 1890$ as $1 : 30$; $1 : 30 :: 9 : 270$ pence, but 270 pence $= £1 2s. 6d.$ *Ans.*

Question 4.—What is the value of one hundred weight of beef if seven pounds cost 2s. 4d.?

$7 : 112 :: 2s. 4d.$; $7 : 112$ as $1 : 16$ then $1 : 16 :: 2s. 4d. : £1 17s. 4d.$ *Ans.*

Or thus—

$7 : 112 :: 2s. 4d.$; $7 : 112 :: 28$ pence; $7 : 28$ as $1 : 4$ then $1 : 4 :: 112 : 448$; $\therefore 7 : 112 :: 28 : 448$, but 448 pence are $£1 17s. 4d.$ *Ans.*

Question 5.—Find the value of 75 yards cotton at 1s. $10\frac{1}{2}d.$ for $7\frac{1}{2}$ yards?

$7\frac{1}{2} : 75 :: 1s. 10\frac{1}{2}d. ; 7\frac{1}{2} : 75$ as $1 : 10$ then $1 : 10 :: 1s. 10\frac{1}{2}d. : 18s. 9d. Ans.$

Or thus—

$7\frac{1}{2} : 75 :: 1s. 10\frac{1}{2}d. \text{ or } 22\frac{1}{2} \text{ pence} ; 7\frac{1}{2} : 22\frac{1}{2}$ as $1 : 3 ; 1 : 3 :: 75 : 225 ; \therefore 7\frac{1}{2} : 75 :: 22\frac{1}{2} : 225$, but 225 pence are 18s. 9d. *Ans.*

There is no such Rule as Inverse Proportion. What has commonly been so called is not proportion at all. The whole difficulty has arisen from mistaking the question. It will be remembered that the fundamental principle of all proportion is that the product of the extremes and that of the means are equal. Let any, so called, Inverse Proportion be subjected to this simple test, and all will be ready to acknowledge that "Tekel" may be inscribed upon it. We will make this plain by an illustration.

Question.—If 5 men perform a piece of work in 8 days, in what time will 10 men perform it, working at the same rate?

The advocate of Inverse Proportion would state the question thus—

$$5 : 10 :: 8$$

Every school boy knows that 10 men would perform the work in half the time occupied by the 5 men; hence the fourth term will be the half of 8, or 4 days.

The proportion completed will therefore stand thus—

$$5 : 10 :: 8 : 4$$

Now the product of the extremes, 5×4 , is 20, while the product of the means, 10×8 , is 80. Therefore, by the principle of proportion, 80 is equal to 20. The veriest tyro in Geometry will be ready to apply the proper term to such a demonstration.

Having thus shown that what is commonly called Inverse Proportion, is really no proportion, we will proceed to shew how questions of this character may be wrought by the Rule we have already adduced.

Question 1.—If 5 men perform a piece of work in 8 days, in what time will 10 men perform it?

Here 8 days is the number in kind with the fourth, or required term. Let it occupy the third place. Now, let us enquire, from the nature of the question, whether the fourth term will be greater or less than this third term; as upon this depends the order of the ratio, $10 : 5$ or $5 : 10$. If 10 men will require a greater time to perform the work than 5 men, the greater term will occupy the second place in the ratio, thus $5 : 10$. But, if the 10 men can perform the labour in less time than the 5 men, the less term of the ratio must occupy the second place, thus, $10 : 5$. Now, from the nature of the question, it is manifest that the latter hypothesis is correct; hence, the question properly stated stands thus—

$$10 : 5 :: 8$$

Now by the Rule $10 : 5$ as $2 : 1$ and $2 : 1 :: 8 : 4$

$$\therefore 10 : 5 :: 8 : 4 \text{ days. } Ans.$$

This proportion proves itself true by the test already used on the, so called, Inverse Proportion.

$$\begin{aligned} 10 \times 4 &= 40, \text{ product of extremes} \\ 5 \times 8 &= 40, \text{ product of means} \\ 40 &= 40 \end{aligned}$$

Question 2.—If 10 men build a house in 37 days, in what time will 75 men build it?

$$75 : 10 :: 37$$

Now $75 : 10$ as $15 : 2$ and $15 : 2 :: 37 : 74 \div 15$

$$\therefore 75 : 10 :: 37 : 4 \div 14 \div 15 \text{ days. } Ans.$$

In Compound Proportion, it will be found advisable to treat the problem as so many distinct simple proportions, each result being used as a term in the succeeding statement.

III.—OFFICIAL NOTICES:

INTIMATION TO CLERKS OF SCHOOL BOARDS.

The Superintendent of Education begs to call the attention of the Clerks of the various Boards of School Commissioners to the fifteenth paragraph of the present Educational Enactment, viz., "The Commissioners shall return to the Governor, on or before the 31st day of December next, a true account of the monies received and distributed by them, and a report of their proceedings, with such other returns as may be directed by the Governor, and shall certify that the same are to the best of their knowledge correct, and that they have distributed the Provincial money impartially and faithfully."

It is exceedingly desirable, in every point of view, that the half-yearly Returns of the Boards are forwarded to the Provincial Secretary's Office on or before the time above specified. Too often is it toward the end of January or beginning of February before some of the Returns come into the hands of the Superintendent of Education, rendering it thereby exceedingly inconvenient to him, to say the least, to present anything like a full and accurate view of the general state of Education throughout the Province. And there is really not the least necessity for this delay. The Boards generally meet on the first or second week of November, and the money is then drawn, or immediately thereafter, so that the Clerks have four or five weeks before the Returns are required, to make them up.

If any of the Clerks are without Blank Returns, they will receive them immediately by making application to Messrs. A. & W. Mackinlay.

NORMAL SCHOOL.

There are now not less than 89 Students enrolled in the Normal School, several having arrived from a distance since our last publication. There is only accommodation provided for 72, so that 17 new seats and desks have been required.—The greatest inconvenience arises from the want of room in the recitation exercises, when the Pupil-Teachers are divided into classes. Should the present number continue, it will be indispensably necessary to enlarge the Recitation Rooms.—But the most satisfactory feature at the present Session is the higher attainments of the greater proportion of those in attendance. A considerable number of them has received part, at least, of their education from Graduates of the Normal School, and this circumstance has evidently affected, and that most materially, both the matter and manner of their education, and the longer the Normal School is in operation, the more extensively will this be felt.

MODEL SCHOOL.

The Governor-in-Council has been pleased to confirm the nomination of Mr J. R. Miller, as successor to Mr Webster, in the Provincial Normal School at Truro.

QUALIFICATIONS OF TEACHERS.

The following beautiful and pithy extracts are from Morrison's recently published Manual on School Management.—

We commend them to the careful perusal of all the Teachers in the Province:—

THE TEACHER MUST BE AN EDUCATED MAN.

The teacher must himself know the subjects he undertakes to teach. To the extent of his acquirements we would assign no limits but those which God has assigned. The more he knows, the better fitted he is for being an instructor of youth. In making these acquirements, however, the young teacher would require sedulously to guard against the besetting sin of most young students, of putting quantity for quality. It is not the amount of a man's knowledge which makes him an educated man. A man may have a smattering of almost all learning, and yet may not be so wise as he who knows but one subject, but knows that subject well. While, therefore, the teacher endeavours to acquire as much knowledge as he can, he should endeavour to acquire it in a methodical, systematic manner. Let each newly acquired fact be connected with facts previously acquired,—let it be put in its proper place, so as to be within call when wanted, and thus all his knowledge will be serviceable to him. He will have learned the grand distinction, which so few learn, between knowledge and wisdom. The teacher should also avoid a desultory mode of study. Not they who lightly skip from spot to spot, but they who walk with firm, cautious step, "leave foot-prints on the sands of time." On the other hand, it is as necessary to guard against ceasing to learn. Flushed with success at coming off a first-class man at the Government examination, and being appointed to a school in a rural district, where the incentives to study are few, and where, with the exception of the minister, he is looked upon as the most learned man of the neighbourhood, the young teacher is apt to imagine that he has no more occasion to study. Vain imagination!—his study is then but beginning; and the moment he has come to the conclusion that he has nothing more to learn, it is high time to give up teaching. Each day's lesson, however simple, will require careful study; and he has not yet learned aright his responsibility, who would venture to appear before his youngest class without most careful preparation. In the stillness and silence of his own room, let him marshal, in imagination, his class before him, take up to-morrow's lesson, arrange its parts, observe what are its difficulties, and endeavour to find out how best he would explain these difficulties to the minds of his scholars. It is thus that he will come forth each morning with fresh thought, as food for those placed under his charge; it is thus that he will awaken their intellectual life, and mould their plastic minds. Still further, let his studies bear more or less directly on his school-work. Let it be the centre round which all his pursuits resolve, and it is wonderful how many hints and suggestions he may receive from things which otherwise might have passed unnoticed. In his vacation, does he take a tour through the country, let him mark well its remarkable geographical features; so that, in his geography class, he may be able to describe graphically the particular spot. Is he reading the ballads of his country, let him commit to memory a few of the more spirited stanzas, descriptive of battles or of marches, so that, in his history class, he may, by reciting these grand old verses, kindle the enthusiasm of his class, and thus impart an interest to what is too often a dry detail of battles, reigns and treaties. But it is needless to enlarge—in one word—

Find tongues in trees, books in the running brooks,
Sermons in stones, and good in everything.

THE TEACHER MUST BE A TRAINED MAN.

Not only must the teacher have the knowledge to communicate, he must also know how to impart it. He must be well versed in the use of the tools he has to work with, and well acquainted with the material he has to work upon. This great truth is now distinctly recognised by all educationists, at least in theory. It was long ignored, and the evil consequences were manifold. But it is not enough even to know how to impart knowledge. The teacher should have a thorough knowledge of children. For this purpose he must study them

in the play-ground and in the school-room. Their modes of thinking, their dispositions, tempers, and habits must be carefully investigated; and so investigated and appreciated, that the teacher may be able to put himself in their position, see their difficulties, rejoice in their joys, and sympathize with their sorrows. And let no one imagine that being childlike is childish. The great lights of this lower world were all childlike. Pestalozzi was childlike, and so was Arnold. The teacher has reached a certain stage of mental development. The process by which he arrived at that stage has been a long one. It was not attained by one gigantic effort. It was, in his case, as in the case of all men, line upon line, eye, sometimes dot upon dot. But to bring the children up to his own platform, it will not do for the teacher to tie a rope round them, and rudely swing them up. It will not even do for him to stand in conscious superiority, on his elevated position, and tell them to come up. He must retrace his steps, one by one, until he comes down to the children waiting below, then taking them lovingly by the hand, he will guide their tottering feet up one step, then another, until they reach the top. He must train them to scale the ladder, not tell them how to do it. Some men begin the child's education at the point which they themselves have reached, instead of coming down to the child's stand point, and commencing there. We must take up the child at the point he has reached, and carry him forward, as he is able to accompany us. And this holds true of all learners, be they children of five years, or children in mental attainments of fifty. He will most undoubtedly be the most successful teacher of youth, who, to his knowledge, adds the power of imparting knowledge,—who can travel back the road over which he has wearily toiled in the acquisition of his own knowledge, and can lead the child along that road surely and safely.

THE TEACHER SHOULD BE AN EARNEST MAN.

The teacher should be an earnest man—one whose whole heart is in his work, and who loves his work, as that special field of labour to which God has called him. He should be one who is conscious that he has a work to do which is inherently noble, and which, if done in the proper spirit, may result in a glorious harvest of good to man, and of glory to God. The work is great, and he who would do it well, would require to be in earnest. He would need to magnify his office, and thus rising to the full dignity of his position, he will feel that it is no mean thing to have in his hands the colour and complexion of the destiny of generations yet unborn. "It is much to be lamented," says the eloquent author of "Life in Earnest," "that there are so few enthusiasts in this honourable and important work. Many who are engaged in it, regard it as a kind of bondage, and sigh for the day which shall finally release them from its drudgery and din. They have never felt that theirs is a high calling, nor do they ever enter the school-room with the inspiring consciousness that they go as missionaries and pastors there. They undervalue their scholars. Instead of regarding them as all that now exists of a generation as important as our own; instead of recognising in their present dispositions the mischief or beneficence which must tell on wide neighbourhoods, ere a few short years are run; instead of training up immortal spirits and expansive minds for usefulness now and glory afterwards, many teachers have never seen their pupils in any other light than as so many rows of turbulent rebels, a rabble of necessary torments, a roomful of that mighty plague with which the Nile of our noisy humanity is all croaking and jumping over. And many undervalue themselves. Instead of recollecting their glorious vocation, and eyeing the cloud of teacher-witnesses with whom they are encompassed; instead of a high-souled zeal for their profession, as that which should form the plastic mind after the finest models of human attainment and scriptural excellence, many regard their office as so menial that they have always the feeling as if themselves were pedants. But there are few fields of brighter promise than the calling of the teacher. If he give himself wholly to it; if he set before him the highest object of all tuition, the bringing of souls to Christ; if he can form a real affection for his scholars, and maintain a

parental anxiety for their proficiency and their principles; if he has wisdom enough to understand them, and kindness enough to sympathize with them; if he has sufficient love for learning to have no distaste for lessons, he will be sure to inspire a zeal for study into the minds of many; he will win the love of all except the very few whose hearts are deal-born; and, in a short time, the best features of his own character will be multiplying in spheres far sunnier in the kindred persons of grateful pupils. Should he live long enough, they will praise him in the gates of public life, or cheer his declining days in the houses which he taught them to make happy. Or should he die soon enough, the rest from his labours will ever and anon be heightened by the arrival of another and another of the children whom God hath given him."

THE TEACHER SHOULD BE CHEERFUL AND HOPEFUL.

Some are continually looking on the dark side of life. They see only the sombre clouds which float above them, and can discern no glimpses of sunshine breaking through. But a wise and beneficent Creator has so formed children, that they are, to a large extent, ignorant of those evils which so embitter man's life. They see the sunshine, but can discern no gathering clouds. It is, accordingly, of vast importance that the teacher should be able thoroughly to sympathize with this law of life in children. Dr Arnold says truly—"His chief characteristic ought to be, that he can rejoice with them that do rejoice." He moves among those who, in a great measure, are strangers to grief and sorrow, and whose young hearts have never known what real trial is; to whom the present is full of enjoyment, and the future appears as if tinged with gold. This is God's appointment; and we believe that it is as unnatural to see a child bowed down with grief, as it is to see a man of eighty attempting to engage in the boisterous sports of childhood. Children are buoyant and hopeful; and any attempt to force them into premature gravity will be attended with disastrous consequences. And accordingly, the teacher who knows the appliances of his art, will fall in with this feature of childhood. He will not seek to arrest the full tide of life, as it bounds bravely on, but will endeavour simply to regulate and guide it. And in order to this, he will need to cherish in himself the feelings of childhood—to retain his youth ever green; and if any thing can do this, it is surely the happy, joyous laugh of children at their play—"a sight to make an old man young."

THE TEACHER SHOULD BE SIMPLE.

The teacher should be simple in his thoughts, and in the expression of them. He must address his pupils in language easily understood. He must use no *sesquipedalia verba* with them. He must lay aside all affectation of learning—all affectation of every kind, and stand before them a simple-minded, earnest man. Unless he do so, he will often labour in vain. He may pour forth a torrent of eloquent, high-sounding words, but no smile of intelligence will lighten their faces—no symptom of their understanding him will betray itself. Whereas, if he make himself easily understood, bring down his language to the level of the meanest capacity, he may expect that it will take hold and produce the desired effect.

THE TEACHER SHOULD BE LIVELY AND ENERGETIC.

The teacher should be lively in manner, and energetic in action. We care but little for those who seem continually crawling towards some object which they can never reach; whose face is never lighted up by a smile, and whose step possesses no elasticity. Liveliness or its opposite are infectious; and as the teacher is in this respect, so will the scholars be. If the teacher is dull, heavy, and moves about with his hand driven down into his pocket, his lack-lustre eye and heavy gait, will infect the scholars, and they will exhibit these qualities too. But, on the contrary, the life and energy of the teacher will infuse life and energy into the pupils; and when they see his beaming eye and lively movements, they will catch the same spirit, and all school work will move on most sweetly. But it is necessary to distinguish between

liveliness and boisterousness. In proportion as the one is to be sought after, the other is to be avoided. Mere noise, vehement bodily gestures, loud vociferations, are by no means necessary, nay, are carefully to be shunned. Here, as in all things else, extremes are to be avoided. *Medio tutissimus ibis.*

THE TEACHER SHOULD BE PATIENT.

The teacher should be very patient; capable of commanding his temper; not given to rash anger. There will be much to try his patience and his temper too. He has to contend against much ignorance, and often against much obstinacy. Frequently he will find that, after explaining a subject with much care, he has to begin anew, and explain again. Frequently he will find his forbearance requited by ingratitude; his love returned by ill-will. But amid all these trials, he must never lose self-command. The moment he does so, his power is gone. If he bursts into anger, he arrays against himself all the angry feelings of the children, who, in such a case, will infallibly bristle up, and take part with the culprit against the master. The words of Solomon, hold true here—"He that is slow to anger is better than the mighty, and he that ruleth his spirit than he that taketh a city."

COLKINDOR'S LINES ON EDUCATION.

O'er wayward-childhood, wouldst thou hold firm rule,
And sun thyself in light of happy faces;
Love, Hope, and Patience, these must be thy graces,
And in thine own heart let them first keep school.
For as old Atlas on his broad neck places
Heaven's starry globe, and there sustains it, so
Do these uphold the little world below
Of Education—Patience, Love, and Hope.
Nathinks I see them grouped in seemly show,
The straightened arms upraised, the palms aslope,
And robes that touching, as adown they flow,
Distinctly blend, like snow embossed in snow.

O part them never! If Hope prostrate lie,
Love, too, will sink and die,
But Love is subtle, and doth proof derive
From her own life, that Hope is yet alive;
And bending o'er, with soul transfusing eyes,
And the soft murmur of the mother dove,
Wooes back the fleeting spirit, and half supplies;—
Thus Love repays to Hope, what Hope first gave to Love.
But haply there may come a weary day,
When overtaken at length,
Both Love and Hope beneath the load give way;
Then with a statue's smile, a statue's strength,
Stands the mute sister, Patience, nothing loath,
And both supporting, does the work of both.

THE TEACHER SHOULD BE A CHRISTIAN MAN.

We have seen that the child's education should have respect to the next life, as well as to this; that his moral and spiritual nature must be cultivated. To do this adequately—to do this at all—the teacher must be one who himself can appreciate, and rightly value, the true end of all education. The Scripture injunction is—"Train up a child in the way he should go;" but no man, who does not himself walk in the way, is fit so to train the child. The man who has no adequate sense of the value of his own soul, will not be likely to impress the young deeply with the value of theirs. The man who has no love to the Saviour animating his own breast, will not be likely to kindle this holy flame in the breasts of his pupils. Indeed, the value of religious instruction will depend not on its amount, but on the spirit with which it is given, and on the effect which it is seen to produce on the master himself. We care but little for the religious instruction which consists in a mere knowledge of the historical facts of Scripture, or in the committal to memory of certain psalms and catechisms. Not that we undervalue either the psalms or the catechism. But we do most emphatically lift up our voice against the too common notion, that such things constitute religious instruction. It is quite possible to have an education thoroughly godless, even where the Bible is read every morning. Let us have, by all means, the reading of the Bible;

but, in addition, let us have the teacher himself a man who breathes its spirit, and who is animated by its principles. The master who has this spirit, will make his Christianity a living power, which will pervade the whole school. He will not confine his religious teaching to any set formal exercises. He will embrace every opportunity of directing his pupils' minds upwards. He will desire to have in him the same mind as was in Christ; and, himself a living man, he will endeavour to bring his pupils to Him who is the life of men. Verily, the teacher's work is a high and noble one; it is also one involving, in the right discharge of it, tremendous responsibilities; but, "if any of you lack wisdom, let him ask of God, that giveth to all men liberally, and upbraideth not, and it shall be given him."

IV.—EDUCATIONAL INTELLIGENCE.

A COMPREHENSIVE SYSTEM OF NATIONAL EDUCATION.

WITH the exception of Prussia, and, perhaps, two or three other countries, we know of none whose Educational Establishments, from most initiatory Common School up to the highest College or University, are consecutive or graded, so that the one paves the way for the other. True, in many countries where a National System of Education exists, there is generally a continuous course pursued—from the lowest Common School up to the highest Academy or Gymnasium, but here the gradation ceases. And why should it? We know no other reason for the existence of this state of things, than the irregular way in which Colleges or Universities have been erected; sometimes by private individuals, sometimes by Corporations, sometimes by denominations of Christians, and sometimes by the State, but altogether aloof from the already existing Educational Institutions. This ought not so to be. The advantages resulting from a consecutive system of Education in any country, from the lowest to the highest, are incontestably great, and cannot fail to be productive of the most beneficial results on the literature, science, industry and morality of that country.

Surely Nova Scotia is well nigh ripe for the introduction of such a system. No intelligent person at all acquainted with educational matters, viewed in their external aspects, will hesitate to admit that the time has arrived for a thorough, a fundamental change in the whole of our Provincial Educational machinery. It is to be hoped that when this change takes place a well weighed measure will be brought forward, and that that measure will rise to the establishment of a National University for literature, science and philosophy, both natural and mental, worthy of our position as a Province.

We never read a more comprehensive system of National Education than what is embraced in the subjoined Act—intended for New Brunswick, drawn up and founded on a Report of a Commission of Enquiry on the condition of Education in New Brunswick, appointed by the Legislature of that Province in 1854 and presented in 1855. The Commission consisted of the following gentlemen, viz., Rev Egerton Ryerson, D. D., Chief Superintendent of Education for Upper Canada, Dr Dawson, of McGill College, Montreal, and the

Honble. Messrs. Grey, Saunders and Brown, of New Brunswick.

Here follows a copy of the Act referred to:—

AN ACT FOR ESTABLISHING A COMPREHENSIVE SYSTEM OF UNIVERSITY EDUCATION IN NEW BRUNSWICK.

WHEREAS the Charter and Acts relative to King's College at Fredericton, have not been found adequate for the purposes intended; and whereas it is expedient to make provision for a comprehensive system of University Education, such as will embrace not only the usual subjects of a Collegiate course, but also those branches of practical science and art which are adapted to the agricultural, commercial, and mechanical pursuits of the great body of the inhabitants of New Brunswick;

1. Be it therefore enacted by the Lieutenant Governor, Legislative Council, and Assembly, That there shall be an University, which shall be a body corporate in deed and in name, by the name and style of "The University of New Brunswick," and shall have a common seal, with power, from time to time, to alter, to renew, or change the same, shall be found convenient.

2. The said Corporation of "The University of New Brunswick" shall consist of a Rector, and at least eight other members of the Senate, as the Governor in Council shall from time to time appoint; provided always, that one third of the members thus appointed (not including the Rector) shall retire from office annually in the order of their appointment; but the same persons shall be eligible for re-appointment: provided also, that one third of the members thus appointed, including the Rector, shall constitute a quorum for the transaction of business.

3. The members of the Corporation for the time being shall constitute the Senate of said University, and shall be subject, in the exercise of their duties, to all lawful orders and directions which shall, from time to time, be issued by the Governor in Council.

4. The Governor of this Province shall be the Visitor of said University on behalf of Her Majesty, and such visitorial powers may be exercised by Commission under the Great Seal of this Province, the proceedings whereof, having been first confirmed by the Governor in Council, shall be binding on the said University and its members and on all others whomsoever.

5. The members of the Senate for the time being of said University, shall possess and exercise all the powers heretofore possessed and exercised by the Council of King's College at Fredericton, and by the Board of Education for this Province, as far as is consistent with the provisions of this Act: Particularly it shall be the duty of said Senate—

1st. To elect a Chairman in the absence of the Rector, and to appoint the times of its meetings and the mode of its proceedings.

2d. To possess and direct the endowment of King's College, the sale or renting of all lands granted in support of said College, and the expenditure of all moneys arising from the sale or renting of said lands, and of all moneys which have heretofore been granted, or which may be hereafter granted for the support of King's College and of the Collegiate School at Fredericton, and for the Normal and Model Schools for New Brunswick.

3d. To make and alter from time to time any statutes, rules, and regulations which may be deemed necessary for the government and discipline of King's College and the Collegiate School, and the Grammar and Parish Schools throughout the Province, and, for the management of Grammar and Parish School Libraries when provision shall be made for establishing them; provided always, that all the statutes, rules, and regulations which are now in force according to law in said College and Schools, shall continue in force until repealed or altered by the Senate of the said University.

4th. To appoint and remove from time to time the Professors, Tutors, Lecturers, Instructors, and all other officers and servants of King's College, and the Masters and Teachers and servants of the Collegiate School, and of the Normal and Model Schools; to prescribe their duties and fix their remunera-

tion; provided always, that all appointments in said College and Schools shall remain until revoked or altered as authorized by this Act; provided also, that the chief officer in the faculty of King's College shall hereafter be a Dean, who shall be appointed annually, and his duties prescribed by the Senate of said University, and who shall be entitled to a sum not exceeding fifty pounds per annum as Dean of said College, in addition to his salary as Professor.

5th. To make and alter, as may be deemed necessary from time to time, any Statutes or Regulations touching the course of studies to be pursued in King's College, and the establishment of scholarships, prizes, and honorary distinctions in King's College, and the examinations for matriculation, degrees, scholarships, prizes, diplomas, certificates of honor, and the fees to be paid by the Students in King's College and Collegiate School, and by the candidates for examination.

6th. To appoint and prescribe the duties and fix the remuneration of Examiners for the examination of candidates for matriculation, degrees, diplomas, scholarships, prizes, and certificates of honor; provided always, that all such examinations shall be open and public.

7th. To confer, after examination as above provided. Degrees in Arts, Law, and Medicine;—to wit, the several Degrees of Bachelor of Arts, Master of Arts, Bachelor of Science, Bachelor of Literature, Bachelor of Laws, Doctor of Laws, Bachelor of Medicine, and Doctor of Medicine; and Diplomas in Civil Engineering, and Land Surveying, Agriculture, Commerce, and Navigation, and such honorary degrees and certificates of honor, merit, or attendance at Lectures, as the Senate of the said University shall judge expedient or proper.

8th. To make such Regulations as the Senate of said University shall judge expedient respecting the moral conduct of Students at King's College, and in the Collegiate, Grammar, Normal, and Model Schools, and their attendance on public worship in their respective churches or other places of religious worship, and their receiving religious instruction from their respective ministers, and according to their respective forms of religious faith.

9th. To examine, and, at its discretion, to prescribe or recommend text-books, maps, charts, and other apparatus to be used in King's College, the Collegiate, Normal, Model, Grammar, and Parish Schools, and books for School Libraries throughout the Province; provided always, that no Foreign books in the English branches of Education shall be used in any one of said Schools without the express permission of the Senate of said University; provided also, that no portion of the Legislative School Grants shall be applied in aid of any School in which any book is used which has been disapproved of by the Senate of said University, and public notice given of such disapproval.

6. And be it enacted, That the Lieut. Governor or person administering the Government for the time being, by and with advice of the Executive Council may from time to time by Letters Patent under the Great Seal of this Province, appoint a fit and proper person to be Rector of said University, who shall also be Chief Superintendent of Schools, who shall hold his office during pleasure, and be subject to all lawful orders and directions in the discharge of his duties which shall, from time to time, be issued by the Governor in Council, and shall receive a salary not exceeding _____ per annum, exclusive of his travelling expenses and the contingent expenses of his office, and shall account for such contingent expenses as provided in respect to other public offices; and shall be allowed one Clerk, with a salary not exceeding _____

pounds per annum, and who shall be Deputy Superintendent of Schools in the absence of the Rector, and in addition to other duties which may be required of him by the Rector, shall be the Secretary of the Senate of said University, and shall enter all its proceedings in a book to be kept for the purpose, and shall keep all the accounts of said Senate.

7. And be it enacted, That it shall be the duty of the Rector of the University—

1st. To provide a place for the meetings of the Senate of the University, and to preside at such meetings, to call the first

meeting of the Senate, and to call a special meeting at any time by giving due notice to the other members; and the expenses attending the proceedings of the Senate shall be accounted for by the Rector, as part of the contingent expenses of his office.

2d. To see that the provisions of this Act, and all the lawful regulations in regard to King's College are duly executed.

3d. To see that the Collegiate, Grammar, Normal, Model, and Parish Schools, and all educational establishments receiving aid from the public funds, are conducted according to law.

4th. To visit each Grammar School (at least once in each year,) and at the time of such visit to examine into the state and condition of the School, or regards the progress of the pupils in learning, the order and discipline observed, the system of instruction pursued, the mode of keeping the School register, the average attendance of pupils, the character and condition of the building and premises, and to give such advice as he shall judge proper.

5th. To see that all inspectors of Parish Schools duly perform their duties; and, in general, to perform all the duties in respect to Parish Schools, their Trustees and Teachers, as are now imposed by law on the Chief Superintendent of Schools, so far as is consistent with the provisions of this Act.

6th. To prepare and lay before the Senate of the University, for its consideration, such regulations touching the discipline of King's College, and for the organization and government of Grammar, Normal, Model, and Parish Schools, and the management of School libraries, as he shall judge expedient and advisable.

7th. To prepare and transmit all correspondence which shall be requested or authorized by the Senate of the University; to have the immediate care and management, as may be directed or approved by the Senate, of the endowment of King's College, and the payment of all moneys available for its support, and the support of the Collegiate, Normal, Model, Grammar, and Parish Schools.

8th. To use his endeavours to provide for and recommend the use of uniform and approved text books in the Schools generally; to submit to the Senate all books and manuscripts which he may procure, or which may be placed in his hands with the view of obtaining the recommendation or sanction of the Senate for their introduction as text books or library books; to employ all lawful means in his power to procure and promote the establishment of School libraries for general reading in the several Counties, Parishes, Cities, Towns, and Villages of the Province; to provide and recommend the adoption of suitable plans of School Houses, with the proper furniture and appendages; and to collect and diffuse useful information on the subject of education generally among the people of New Brunswick.

9. To prepare suitable forms, and to give such instructions as he shall judge necessary and proper, for making all reports, and conducting all proceedings under the Grammar and Parish School Acts, and to cause the same, with copies of said Acts, and such General Regulations as shall be approved by the Senate, for the better organization and government of the Grammar and Parish Schools, to be transmitted to the officers required to execute the provisions of said Acts.

10th. To decide upon all matters and complaints which may be submitted to him by any person interested in connection with the Grammar and Parish Schools.

11th. To apportion whatever sum or sums of money shall be granted by the Legislature for the establishment and support of School Libraries; provided always, that no aid shall be given towards the establishment and support of any School library unless an equal amount shall be contributed from local sources for the same object.

12th. To be responsible for all moneys paid through him, and to give such security for the same as shall be required by the Governor in Council.

13th. To make annually to the Lt. Governor, or person administering the government, on or before the first day of a report of the actual state of King's College, the Collegiate, Normal, Model, Grammar, and Parish Schools, shewing the amount of moneys expended in connection with

each, and from what sources derived, with such statements and suggestions for improving them, as he may judge expedient and useful.

8. And be it enacted, That in order to extend the benefits of establishments already instituted, or which may be hereafter instituted in this Province, for the promotion of the study of literature, science, art, law, or medicine, whether incorporated or not incorporated, by connecting them for such purpose with said University, all persons shall be admitted as candidates for the respective Degrees and Diplomas mentioned in the fifth Section of this Act, to be conferred by said University of New Brunswick, on satisfying the Members of the Senate, by proper certificates, that such persons have, in any of the Institutions hereinafter described, gone through and completed such course of instruction as the said Senate shall, by statutes or regulations to be made as aforesaid, from time to time determine, or as may be prescribed by this Act—and the Institutions in which such course of instruction may be completed, shall be such Institutions as now are or shall hereafter be established for the promotion of education within this Province, which the Lt. Governor or person administering the Government of this Province, by and with the advice of the Executive Council, shall from time to time prescribe to the Senate under his hand and seal at Arms.

9. And be it enacted, That it may be lawful for any person or persons, body, or body politic or corporate whomsoever, to found such and so many professorships, lectureships, scholarships, exhibitions, prizes, or other rewards, in King's College, as they may think proper, by providing a sufficient endowment in land or other property, and surrendering or conveying the same to the Crown for the purposes of said College, and thereupon suing out Letters Patent from the Crown, instituting, establishing, and endowing the same with the property so provided for that purpose as aforesaid; in all which Letters Patent shall be set forth the rules and regulations for the appointing to and conferring such professorships, lectureships, scholarships, prizes, or rewards, as the respective founders thereof, with the approbation of the Senate, shall think fit to prescribe for that purpose; in which rules and regulations the authorities of the said College are hereby required to observe.

10. And be it enacted, That the Programmes of the courses of Instruction contained in the annexed Schedule A, shall be provided for and pursued in King's College, until altered or modified by the Senate of the University as heretofore provided in this Act.

11. And be it enacted, That so much of the Charter and Act relating to King's College, and of the Acts relating to Grammar and Parish Schools as are inconsistent with the provisions of this Act, shall be and are hereby repealed.

V.—REVIEW'S OF SCHOOL BOOKS.

THE GEOGRAPHY AND HISTORY OF NOVA SCOTIA, with a general outline of Geography and a sketch of the British Possessions in North America, by J. B. Calkin, Head Master of Provincial Model School, Truro. Published by A. & W. Mackinlay, Halifax.

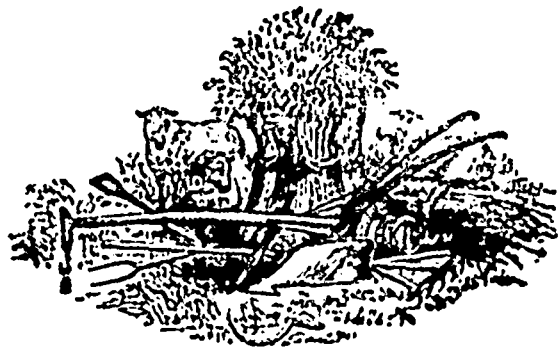
It affords us much pleasure to announce to the Teachers of the Province, and especially to those who have attended the Provincial Normal School, that this book is now ready for use. Its object is twofold, to furnish a simple, yet correct and comprehensive manual of the Geography and History of Nova Scotia for our Schools, and to do so in accordance with the System of Education pursued in the Provincial Normal School. It is our decided conviction that the introduction to the study of Geography with the young ought to be the Geography of their own country, and that on the ground of the

principle of proceeding *a connu a l'inconnu*, from the known to the unknown. And there is, perhaps, no subject so well adapted to children of five or six years of age as that of Geography. This is the epoch in their history when they are mainly dependent on their senses, and when they draw most largely on their information. And what food more congenial to their senses than the objects of nature around, and what knowledge so interesting as that which reduces these objects to a science? The exercising of such children on this branch of knowledge must, of course, be carried on entirely by oral lessons, when this book will form a valuable *code incum* to the teacher. And when the children are able to read and to prosecute the study of Geography in a more systematic form, they will find, first of all, a general outline of the whole subject, then of North America, then of British America, and, lastly, of Nova Scotia, when they are introduced to the subject-matter of book in detail. And this, as is well known by every student who has attended the Normal School, is the order of procedure in the acquisition of every branch of knowledge, first the presentation of the merest outline of the subject, and then the filling up, step by step, till the whole stands in natural, living embodiment before the mind's eye.

The twofold object of the work is, in our apprehension, successfully accomplished. There is a larger amount of information on Nova Scotia, both in its geographical and historical features, than is anywhere to be met with, in the same space. The style is simple and elegant, and well calculated to interest and impress the youthful mind even when used as a reading book, which in the historical department may be done with great benefit. The Vocabulary at the end will be found a valuable auxiliary, both to the teacher and scholar, in understanding the more difficult or technical terms employed, and especially to the former, who may obtain therefrom materials for his pictorial representations.

We shall rejoice to see this book in general use in all our Schools as the Rudiments of Geography. A new and enlarged Map of Nova Scotia is in course of publication by Phillips, of Liverpool, England, which will form an admirable appendage to this treatise. With such equipment in the preliminary stages of Geography, followed by Dr Sullivan's large book on the same subject, it is to be hoped that a thorough knowledge of this useful and entertaining branch of learning will ere long be diffused all over the Province.

AGRICULTURAL.



II.—PRACTICE OF AGRICULTURE. ECONOMY OF FODDER.

[Though fortunately the following remarks may not be

applicable to the great majority of our Farmers, they contain most valuable hints that it were well to carry out in all circumstances.]

The hay crop throughout most parts of Canada, and a great portion of the Western States, has proved this year very much below an average. Every farmer should therefore be careful of his fodder, and economise its use. Much cattle food is annually wasted either for want of knowing how to mix and use it, or, as is too commonly the case, from sheer inattention and carelessness. How frequently is straw seen rotting in unsightly heaps, instead of being daily employed in comfortably bedding cattle, and either chopped or boiled with other substances for food. Our farmers this winter, must pay strict attention to the economical mixing and preparing their turnips, mangles, carrots, flax, &c., as substitutes in a great measure for hay, or their flocks and herds will cut a sorry figure indeed before the advent of spring.

It is fortunate that the straw of most of the cereals has been abundant, and in consequence of the favorable weather in harvest, it was secured generally in good condition. It will hereafter be wanted not only for bedding, but in a more than usual degree for provender. Farm horses may be fed with straw cut fine and immersed in boiling linseed meal, and water till all is absorbed, when it should be well mixed up. The straw thus becomes a good medium for conveying the linseed meal, the most fattening of all substances, into the stomach of the animal, and the effect produced is of the greatest advantage. Straw may also be advantageously mixed with other ingredients, such as bran, turnips, carrots, &c., and either boiled or steamed. The compound will prove particularly adapted as food for cattle. The boiling of these productions of the farm with linseed meal, so as to make a kind of pudding of thick jelly, has for many years been advantageously used in Britain in the fattening of animals. It is found by experience that cattle relish and do better upon a cooked mixture of food, than the same quantities of the various materials given singly.

But in order thus to prepare and economise straw as food for stock, the farmer must be provided with an efficient chaff cutter; an implement of essential importance in the present day and under existing circumstances. These machines may now be readily obtained of most of our implement makers in all the older settled districts of the Province; and they are usually exhibited at most of the agricultural shows, of different forms, prices, &c. By means of this implement and the exercise of care and judgment in the selection and economy of material, cattle feed may be improved and increased to an extraordinary degree. It thus becomes more nutritious and fattening, and answers many other purposes connected with the management of live stock, and the judicious management of a farm.

Another most important means of economising fodder; one which every farmer can more or less adopt, consists in keeping animals clean, dry, and warm during the trying season of winter. A sufficient amount of good food and water, regularly given, although of indispensable importance, does not embrace the whole of the proper winter-management of stock. In this climate shelter and warmth are no less indispensable, if sound thrifty animals are desired.—Hence the necessity of suitable buildings to meet these conditions. It is a clearly ascertained physiological fact, which modern chemistry has established, that a large portion of the food of animals exposed to cold and draughts, is consumed in generating and sustaining the heat of their bodies, instead of being converted into fat and muscle, as would be the case in a warmer and less exposed situation. A warm stable or byre is therefore a great economiser of fodder. Animals thus cared for will thrive better on less food than will others under less favorable circumstances, with a more ample supply. The fact demands the best attention of the farmer at all times, especially when, as at present, the hay crop is so far below the average.

It is important, however, to observe, particularly in refer-

ence to sheep, that buildings intended for wintering stock should not be made too close and warm; a mistake, it is true, we are not in danger of committing in this country. All our domesticated animals require a constant amount of pure air, and therefore proper attention should be paid in the construction of farm buildings to the vital question of ventilation. To combine the various conditions necessary in the healthy management of stock, requires constant care and a sound judgement. In this country sheep must be put into yards having sheds, during the cold and storms of winter. But great care is needed in seeing that they are not kept too close; they require exercise and change, with plenty of fresh air, otherwise they will decline in condition, and become the victims of some contagious disease. Of all the physical conditions in which this animal can be placed, those most unfavorable to its health and growth, are dampness and exposure to cold stormy wind. Proper attention to matters of this kind, which come more or less within the ability of every farmer to carry out, will, in seasons like the present, make a scanty supply of fodder do more service in promoting the growth and sustaining the health of the domesticated animals, than a more abundant supply without such attention.

ON THE FIRST PRINCIPLES OF AGRICULTURE.

As every trade and profession must now-a-days have its anxious, postulated, or first principles, in order to give it a scientific dress among other crafts, it is highly reasonable that the art of Agriculture, which is now almost completely reduced to a science, should almost be permitted to assume its first principles. Without the knowledge of first principles, nothing can be expected from any of the practitioners of Agriculture worthy of attention—their practice being merely a copy from that already established, if not some gross deviation, perhaps, from the beaten track, by means of some erroneous idea of their own conceiving. Men acquainted with first principles will never deviate from them, while they find them correct; perhaps they may try some experiment consistent with them, and succeed. This, then, is the foundation from which we are to expect a rational system of Agriculture, adapted to all the varieties of soil, climate and seasons, with which it must ever be connected.

It is true that by means of great attention to, and a careful and judicious imitation of good Farmers, a man of mean talents is sometimes known to make a tolerable figure in this line. He may raise good crops; and good crops are no bad criterion of good farming. Indeed, a man, otherwise block-head (at least one who has no notion of first principles,) often excels those who adhere to them with scrupulous exactness; but this must be only where the knowing man wants the talent of strict application. This talent is an essential requisite for a Farmer: indeed, it is indispensable in every occupation where success is desired.

The general principles upon which the success of Agriculture depends are:—

1. Without draining wet land, no improvement.
2. Unless land thus drained is properly cleaned, the object of draining is frustrated, and that in proportion is this operation is executed.
3. Manures will always fail in producing the desired effect, in proportion as draining and cleaning are neglected.
4. Early sowing always produces shorter and siffer straw than late sowing, and that in exact proportion to the times, when not affected by extraneous circumstances.
5. The various species of seed-corn are adapted to various soils, situations, seasons and other circumstances.
6. Picking and propagating the best heads of the most approved kinds of grain and seeds is the surest method of preserving them undegenerate.

Draining.—This article has been amply discussed by able hands, and Elkington's and Smith of Deanston's systems of draining are universally known. Almost every field has

its own peculiar circumstances; but as it is not our design in this place to enter into the minutiae of draining, but to introduce it as a first principle in farming, we shall say no more about it.

Without draining, no improvement.—Without it no other operation can be effectual to the end proposed. When land is gorged with water, it cannot be cleaned. No labor is sufficient to do it, except in a very uncommon drought—in some soils, not even then; and when land is not clean, it is impossible to suppose that dung, lime, or any other kind of manure, can have its full effect. Dung will promote the natural grasses more than any kind of grain which may be sown; and these, although the land is sown with artificial grass seed, will still thrive, and render the ground completely fit for a fallow crop, or, if on stiff clays, a summer fallow immediately after dirty-lean oats.

Cleaning.—This department requires the Farmer's constant attention, and by this alone can be rendered effectual. Early ploughing is of much importance, and it is impossible to be too early at summer fallows, or in preparing the land for turnips or potatoes, when spring sowing is over. As we at present speak chiefly of land in the second stage of improvement, it must not be considered so clean as in future it may be expected. We shall suppose the land of a free nature, but extremely dirty by means of its late moist state previous to draining. Every Farmer may plough to his own mind, according to the nature of the soil, and the grass he has to destroy; but, in general, light ploughing is sufficient to kill grass, which generally runs near the surface—and then, before the manure is applied, a strong furrow is of much use, to mix new earth with the dung. At the same time some soils will not admit of a strong furrow, unless in the spring, before the moisture is exhausted. In such situations, harrowing, rolling, and gathering grass roots frequently after every ploughing, is essentially necessary; but it is not our design to teach either ploughing or harrowing.

Manures.—Neither is it our design to treat of the nature and properties of manures, and how they operate upon land, so as to produce better crops; whether by communicating to the soil the vegetable food which they contain—whether by enabling it to attract nourishment from the atmosphere—or by enlarging the vegetable pasture which it contains—or by dissolving that which the soil already contains, so as to prepare it for entering the roots of plants.—These are philosophical inquiries, not essentially connected with the present business. Upon this subject there are various theories—some of which are extremely rational, and others extremely absurd.

Early sowing produces less straw than late sowing, and that in exact proportion to the times (ceteris paribus).—The knowledge of this principle, which was not discovered, at least not attended to, till the close of the last century, is of much importance to the Farmer. Before it was known and practised, the hazard of sowing land in a very high state of cultivation was very great. Oats or barley sown in such condition at the usual period of seed-time as formerly—viz., oats late in March, and barley about the term of Witsunday—would have been often entirely ruined by being too strong. English barley (commonly from Lincolnshire) and Dutch, and many other early kinds of oats, were adopted without changing the time of sowing; and as these have a tendency to produce shorter straw, they were found of much advantage in securing a full crop without lodging. But it is found that any of our oats sown early produce a shorter and stiffer straw, which has the same effect. Early oats, however, are still much in vogue. The Lincoln barley is almost out of repute; it is well known to some Farmers that the common Scotch barley is the best substitute for it—as, when sown early, its straw becomes shorter, much stiffer, and less apt to lodge. Potato oats are a comparatively new species, and are said to be natives of South America. It appears they were first imported into some of our midland counties of Scotland, in a quantity extremely small; and that they obtained that name from the circumstances of their arriving in a package of potatoes. This is a valuable kind of oats in

point of meal yielding two or three pecks per boll more than the Angus, which, in every other respect, we reckon our best oats.—They appear to be again losing ground in the estimation of some people; they are more apt than any other kind to keep the soil, like wild oats, and thereby to annoy the succeeding crops. It seems to be apprehended that, were they to be frequently shaken and ploughed in dry, that they would be as great a weed too. They seem to have another disadvantage, which, in the present circumstances of our labor, is not a small one. They ripen along with the wheat; and that article being now more than ever the chief object of the Farmer, is in danger of occasioning very serious consequences as to the timely cutting of that crop.—Potato oats are also extremely apt to stuke, and seldom fail to drop in shearing. All kinds of early oats are fit only for fine land, or land in a high state of cultivation; but upon inferior land they are the best, when a bad season has thrown the seed time too far back for common ones. Blainslie oats are our native early and have a finer meal as well as finer straw; but they seem mostly out of favor at present. These several varieties of oats and barley afford the Farmer great advantages in securing his grass seeds, as well as his corn crop, in certain seasons and situations.

As to spring wheat, the dwarf kind, which is known to produce short straw, and is also advantageous in the above circumstances; and as it has a natural tendency to produce short straw, it ought certainly upon rich soils to be preferred in winter.

Picking out the best heads of the most approved grain, is the best method of preserving species from degenerating.—It must be evident to every one that grain has a constant tendency to degenerate. But whether its species suffers or not, it must, by a thousand circumstances, be so blended and mixed with other kinds, and even with different grain, that it requires frequently to be renewed by picking and propagating the best heads. This is found by experience to be the surest method of preserving the grain; and so different is the produce of the earliest and most vigorous ears from that of the poor diseased ones, that it has generally obtained some name to distinguish it from that even of its kind. A Farmer in East Lothian some years ago found, in a cold, bleak situation (Coldingham Muir) a very fine looking vigorous head of wheat—which, being ripe at a period earlier than might have been expected from its situation, he brought with him; and having repeatedly sown its produce, at last furnished seed to a considerable part of that county, and even to farms in many a distant county. It is an excellent kind of wheat—being considerably earlier and more prolific than any kind we are yet acquainted with. It is known as *Hunter's Wheat*.

These hints may perhaps be of some use to Farmers who are only about the beginning of their agricultural pursuits. They may cause a little reflection, and occasion rational experiments, which may confirm, in their mind, the utility of such first principles upon which they were made.—*Scottish Farmer*.

FIXED FACTS IN AGRICULTURE.

Somebody has made up the following list of "fixed facts" in agriculture. Though calculated for the Eastern States, many of the facts are of general application:—

1. All lands on which clover or the other grasses are sown, must either have lime in them naturally, or that mineral must be artificially supplied. It matters but little whether it be supplied in the form of stone-lime, oyster-lime, or marl.
2. All permanent improvement of lands must look to lime as its basis.
3. Lands which have long been in culture, will be benefited by application of phosphate of lime, and it is unimportant whether the deficiency be supplied in the form of bone dust, guano, native phosphate of lime, composts of flesh,

ashes, or that of oyster-shell lime—or marl—if the land needs it.

4. No lands can be preserved in a high state of fertility, unless clover and the grasses are cultivated in the course of rotation.

5. Mould is indispensable in every soil, and a healthy supply can alone be preserved through the cultivation of clover and the grasses, the turning in of green crops, or by the application of composts, rich in the elements of the best mould.

6. All highly concentrated animal manures are increased in value, and their benefits produced by admixture with plaster, salt, or pulverized chareoul.

7. Deep ploughing improves the productive powers of every variety of soil that is not wet.

8. Sub-soiling sound land, that is, land that is not wet, is eminently conducive to increased production.

9. All wet lands should be drained.

10. All grain crops should be harvested before the grain is thoroughly ripe.

11. Clover, as well as the grasses intended for hay, should be mowed when in full bloom.

12. Sandy lands can be most effectually improved by clay. When such lands require liming or marling, the lime or marl is most beneficially applied when made into a compost with clay. In slacking lime, salt brine is better than water.

13. The chopping or grinding of grain to be fed to stock, operates as a saving of at least twenty-five per cent.

14. Draining of wet lands and marshes adds to their value, by making them produce more, and by improving the health of the neighborhoods.

15. To manure or lime wet lands, is to throw manure, lime and labor away.

16. Shallow ploughing operates to impoverish the soil, while it decreases production.

17. By stabling and shedding stock during the winter, a saving of one-fourth of the food may be effected; that is, one-fourth less food will answer, than when the stock is exposed to the inclemencies of the weather.

18. A bushel of plaster per acre, sown broadcast over clover, will add one hundred per cent to its produce.

19. Periodical application of ashes tends to keep up the ingredients of the soil by supplying most, if not all, of the organic substance.

20. Thorough preparation of land is absolutely necessary to the successful and luxuriant growth of crops.

21. Abundant crops cannot be grown for a succession of years, unless care is taken to provide an equivalent for the substance carried off the land in the land products grown thereon.

22. To preserve meadows in their productiveness it is necessary to harrow them every second autumn, apply top-dressing, and roll them.

23. All stiff clays are benefitted by fall and winter ploughings, but should never be ploughed when wet. If at such ploughings the furrow be materially deepened, lime, marl or ashes should be applied.

24. Young stock should be moderately fed with grain and watered, and receive generous supplies of long provender, it being essential to keep them in a fair condition, in order that the formation of muscle, bones, &c., may be encouraged and continuously carried on.

25. Milch cows in winter, should be kept in dry, moderately warm, but well ventilated quarters, fed and watered three times a day, suited two or three times a week, have clean beds, be curried daily, and, in addition to their long provender, should receive succulent food morning and night.

26. Full complement of tools and implements of husbandry are intimately connected with the success of the husbandman.

27. Capital is not only necessary to agricultural success, but can be properly used in farming as in any other occupation.

DAIRIES AND BONE MANURE.

An English paper, in commenting upon this subject, remarks that the Cheshire dairy farmer, by the free use of bone manure laid on his grass lands, makes his farm, which, at one time, before the application of bone manure, fed only twenty head of cows, now feed forty! In Cheshire, two-thirds or more, generally three-fourths of a dairy farm are kept in perfect pasture, the remainder in tillage. Its dairy farmers are commonly bound to lay the whole of their manure, not on the arable but on the grass land, purchasing what may be necessary for the arable. The chief improvement, besides drainage, consists in the application of bone manure. In the milk of each cow, in its urine, in its manure, in the bones of each calf reared and sold off, a farmer parts with as much earthy phosphates of lime as is contained in half a hundred weight of bone dust. Hence the advantage found in returning this mineral manure by boning grass lands. The quantity of bones now given in Cheshire to an imperial acre of grass land is about twelve or fifteen cwt. This dressing on pasture lands will last seven or eight years; and on mowed land about half that period. But the grass land once boned and kept under pasture is never so exhausted as to be as poor as it was before the application. —*Rural New-Yorker.*

FOWLS—FOOD, &c.

When fowls are confined to a narrow space they require much care and attention to supply them with all kinds of food which they collect when running at large; and without care to supply their wants, they will not be profitable. When running at large, as they please, they devour many insects, eat gravel, lime and various kinds of herbage, seeds of various kinds, and many other things which we cannot discriminate, though we look on while they select their food.

In winter, when fowls have less access to the ground, or when they are confined in small enclosures, they have less opportunity to select the mineral substances which they require. Hence an artificial supply becomes necessary. How shall this be given? By placing the articles within their reach, so that they may take voluntarily just the quantity to which they are promoted by nature. Place old lime-mortar, bones, oyster or clam shells, broken fine, where the fowls can readily pick them up. It has been ascertained that if you mix with their food a sufficient quantity of egg shells, broken bones, oyster shells, and effete lime, which they eat greedily when so mixed, they will lay twice or thrice as many eggs as before. A well-fed fowl is disposed to lay a vast number of eggs, but cannot do so without the materials for the shells, however nourishing in other respects the food may be; indeed, a fowl fed on food and water, free from carbonate of lime, and not finding any in the soil, or in the shape of mortar, which they often eat on the walls, would lay no eggs at all, with the best will in the world. A letter was read a few years ago before the British Association, from M. Sacc, of Neuchâtel, Switzerland, on account of some experiments in the feeding of fowls. He states, first, that fowls to which a portion of chalk is given with their food, lay eggs the shells of which are remarkable for their porcelain whiteness. By substituting for chalk a calcareous earth, rich in oxide of iron, the shells become of an orange red color. Secondly, he informs us that some hens fed upon barley alone would not lay well, and they will tear off each others feathers. He then mixed with the barley some feathers chooped, which they eat eagerly and digested freely. By adding milk to their food they began to lay, and ceased plucking out each other's feathers. He concludes that this proceeding arose from the desire of the hens for azote food. An idea prevails with many, that any sort of grain, even if a little damaged, will do for poultry, but this is a grand mistake. A friend of the writer once came very near losing his whole flock of valuable fowls from feeding them with damaged corn, which had been heated. Those who feed largely know better, and invariably make it a rule to feed

none but the best. Eggs, if at any time are a luxury, it is in winter, and whatever promotes their production is of interest to the majority of our readers.—Country Gentleman.

ANNUAL ADDRESS.

DELIVERED BY THE PRESIDENT OF THE AGRICULTURAL ASSOCIATION, WILLIAM FERGUSON, ESQ., AT KINGSTON, SEPT. 30, 1859.

Gentlemen of the Provincial Association.—At this the 14th Annual Provincial Agricultural Exhibition of Upper Canada it is pleasing to reflect that while displaying the progress made in the peaceful arts, consequent on our safety from foreign foes or domestic broils, our present happy security does not depend on extensive standing armies, fed and maintained by the industry of our people, but on the prestige and prowess of that noble country of which we are proud to form an integral part, and the desire of whose sovereign has ever been to maintain with her own our honor and her rights.

Through the wise course of non-interference adopted by her Majesty's advisers, our beloved sovereign and her subjects have been happily exempted from the disasters resulting from the late fearful conflicts between European despots, and terminating as it has done with such an amount of human misery, suffering and desolation, to a people whose sunny clime has been the admiration of the world, and whose fields, which are so fair, have been desolated by the fearful scourge incidental to a state of warfare.

Duly appreciating the blessings of peace and the commercial advantages which the colonists of this part of her Majesty's vast dominions enjoy from the connection with Great Britain, they should exert their best efforts to secure all the benefits resulting from this happy position by developing the resources of the country, and by the proper appreciation of the extended information which science and the experience of the past place within their reach.

To secure the many blessings which the munificent Creator intended for mankind in the varied productions of the world, they have been permitted by degrees, assisted with the aid of chemistry, to contemplate Nature's laboratory of wonders through the light thrown on that science by the profound researches of Liebig, Johnston, and many others, and are made acquainted in the plainest manner with the constituents of the earth in its varied form, whether of soil, plant, or animal, and their mutual dependencies upon each other so beautifully and learnedly again illustrated by Professor Lawson, of Queen's College, at his lecture on Tuesday last.

With a thorough knowledge of the constituents of her soil, by the aid of chemistry, the skilful husbandman is enabled not only to ascertain in what component his land may be deficient for the production of desired crops, but also the most suitable fertilizers required to supply such deficiency, as well as to select such soils as are best adapted for the production of certain crops under varied circumstances, either by adopting a rotation crop or otherwise.

Nor are the advantages of a correct knowledge of chemistry necessarily confined to the agriculturist alone. In the arts and manufactures it lends its valuable aid, and in many of the operations of the manufacturer, as well as the artist, whose opportunities of obtaining scientific information, may have been limited, through long experience and extended practice a practical knowledge of it is imperceptibly forced on their attention and understanding, and hence they become convinced of its value and importance. It may not be convenient for every farmer to acquire a thorough knowledge of this science; but now that the chief educational department of the Province offers such facilities, through standard works on the subject, with the assistance of appropriate apparatus, it becomes the duty of the trustees controlling the management of the schools of the country, to place within the reach of the rising youth of the land the facilities thus offered, and with the aid of adequate teachers enable them to obtain a practical knowledge of this interesting and valuable science.

As the prosperity of the Province, at least for a considerable time to come, must mainly depend on the success of our agricultural resources, we should avail ourselves of every opportunity of advancing those interests, whether they present themselves in the shape of a new and improved system of farm culture, labor saving implements or otherwise. It is idle to deplore the loss which the country sustains in unfavorable years of diminished grain and other crops, while in the mean time no preparations or attempts are being made to avert the fatal effects of future recurrences, either by arming ourselves with a knowledge of cause and effect, and means of prevention, or by substituting other and better modes of culture, calculated to cause another earth, in accordance with the Divine fiat, to bring forth in abundance, if not of wheat at least of other crops equally profitable to the grower.

True it is, Canada is occasionally visited with uncongenial sea-

sons, unfavourable to almost every species of culture or crop, which no human effort or foresight can either control or avert; and such, to a certain extent, was the unpropitious season of the past year, 1858; but should not the experience of the past teach us not to depend on perpetual cropping with wheat, which has resulted with so much distress to some sections of the country. It is not now absolutely necessary to a profitable system of cultivation that every farmer should produce a certain quantity of breadstuffs for exportation, wherewith to ensure his annual cash returns. Other products have been equally remunerative, when the wheat ceased to be profitable, either through the effects of weevil, rust, or other causes; and the foreign market for beef, pork, butter and cheese, as well as for pea and other coarse grains, has presented a demand far beyond any amount we have been able to supply, and at prices at least equally remunerating as that of wheat to the producers.

To ensure success in the dairy branch of husbandry, as well as in the rearing of live stock, a proper selection of the most profitable domestic animals should claim the thoughtful consideration of the agriculturist, as much of the success attending his efforts must depend on the skill and care bestowed upon them. It is fallacious to entertain the idea that inferior or common breeds will thrive upon poorer pasture or less costly food; or that they will yield as profitable returns for their rearing and keeping, or that, if beasts of draught, they will perform the labor of well bred and well fed animals. Every person having opportunities of making comparisons between pure and ordinary breeds of domestic animals, when side by side, with equal feeding, must be convinced of the advantages resulting from improved breeds of every description of stock. But no amount of food, however rich or excellent it may be, will cause an animal to thrive that is exposed to the rigors of a cold Canadian winter, deprived of the necessary and proper shelter or housing required to protect it.

The very excellent display of superior animals, at the present exhibition, affords satisfactory proof that this department is increasing in interest, and presents an improvement creditable to the country; and it is highly praiseworthy to those gentlemen through whose skill and enterprise these many excellent specimens of valuable domestic animals have been imported, during the present and past years, and by which our stock has been materially improved and the country greatly benefitted. Among the latest importations at the present exhibition, may be noticed a variety of animals introduced by Mr Nicmo, of Camden East, County of Addington, consisting of Galloway cattle, Leicester sheep, a Clydesdale brood mare, and some specimens of trained sheep-dogs.

Next in importance to a thorough knowledge of the capabilities of the soil—the proper manner of cultivating it, and the most profitable domestic animals to be reared, correct information is necessary with reference to the most suitable labor-saving implements required to carry on the business of the farm. The cost of manual labor in Canada, even when it can be obtained in the hurried seasons of farm-work, is such a draw back on the farmers' resources that it becomes absolutely necessary to adopt the most efficient labor saving implements for the various operations of the farm, and generally to substitute horse power whenever it can be introduced.

The great advantage of labor-saving implements has been considered of so much importance, when farming is extensively carried on, that no hesitation is made at even superseding horse power by steam power in many of the farming operations in England, and the steam plough has there become no longer a matter of wonder.

Although the period may be remote when its introduction in Canada, may be deemed necessary, yet there is very little doubt of its being generally adopted at no distant day by the enterprising farmers of the western prairies. Already have the members of our Agricultural Society foreseen its beneficial results, and by the liberal offer of one thousand dollars premium induced the inventive genius of one of their people to construct a steam plough, which, for its efficiency and excellence, has been pronounced after a practical trial, to be all that the most sanguine could desire as a perfect agricultural machine.

While desirous of giving to the genius of every country its full share of praise for useful inventions, we must not omit noticing that Western Canada has also produced its steam plough; and that its enterprising inventor, Mr Romain, in full confidence of its capabilities, entered in competition in July last, with those of English invention and manufacture at the Royal Agricultural Society at Warwick, England, when its efficiency was acknowledged, notwithstanding that an accident happened which prevented its performing the allotted portion of work. With an agriculture thus revolutionized, as it were, by steam, it cannot be expected that the Canadian agriculturist, who, from the uneven surface confirmation of many parts of the country, will be obliged to continue the present expensive hand and horse power system of farming, on old and perhaps worn out land, can keep pace or compete in the markets of the world with the produce of those extensive western plateaus which can with such advantage be ploughed up and threshed so

economically by steam. As well might we expect the stage coach of by-gone days to travel with the speed of the present railway locomotive.

While we offer our most grateful acknowledgements to the Lord of the harvest for the bountiful crop vouchsafed throughout the land during the present season, so materially tending to resuscitate the lessened prosperity of the Province, it is worthy of consideration to ascertain, if possible, the chief cause of the late depression, with a view of preventing its future recurrence. Many opinions from the press and otherwise on the same subject have been already enunciated, parties in many instances taking opposite views; but the prevalent one has been that our extravagances and desire for finery in various forms, and for costly articles of foreign manufacture, have induced a much larger importation of those articles than what our diminished exports would warrant. Should this opinion be correct, and there is doubtless good reason for believing it to be partly true, it is time to diminish the importation of these articles that can be manufactured with advantage at home particularly now that the fostering care of the Government has, by a recent enactment, shielded the home manufacturer by a large protective duty, which will eventually enable him to undersell the foreign-made articles.

But it is to be feared that there have been other causes to which the increased depression of the country may be fairly attributed. There are to be found in every country (and Canada is not an exception) many persons to whom labor is repugnant, and who, stimulated by airy dreams of amassing wealth without labor, embark, as they have been doing, in wild speculations on the incidental chances which a European war might offer in the rise of the principal staple in which they have risked their cash, as well as their credit, to the utmost extent, afterwards adroitly managing through false rumours, and otherwise to place a fictitious and extravagant value on that indispensable necessary of life, regardless of the embarrassment occasioned to the poor consumer in procuring sufficient for his present wants. In the mean time the fair value in cash, which would have been easily given for the staple thus backed up, remains in the pocket of the foreign purchaser, thereby lessening the circulating medium here, while the evil occasioned to the poor by such seasons of depression and exorbitant prices, is often ignorantly charged to the producer instead of the speculator. Many instances are on record where fabulous prices have been obtained, where no dearth or scarcity existed, by the avaricious speculator closing his granaries until extravagant profits were secured, or threatened bankruptcy compelled him to sell to meet his own monetary engagements, bringing, in too many instances, ruin on himself and others who might be depending on or connected with him in business transactions.

The properly constituted monetary institutions of a country exercise a powerful influence in promoting its prosperity; and in this respect Canada has just cause of congratulation in her establishments of this kind. It is to be feared, however, that the banking facilities and monetary accommodation so liberally afforded have been too often employed in the system of forestalling referred to without a corresponding public benefit. Better would it be for the country, as well as for the class of persons thus engaged (who in many instances possess no mean share of intelligence, as well as resources) to direct those talents and resources to some other channel by which they might equally improve their own condition, and benefit their fellow men.

After some further remarks upon the financial and commercial prospects of the country, and upon the best means of promoting its manufacturing interests and some general observations upon the benefits to be derived from the new tracts of land recently opened for settlement, the President goes on to say:

When I had the pleasure of addressing you on a similar occasion this time last year at Toronto, I endeavored to draw the attention of the farmers to the advantages resulting from the cultivation and management of flax. Since that period the Board of Agriculture, with the view of testing the benefits that might be derived from its culture, procured a sufficient supply to admit of a portion of seed being placed at the disposal of all such county agricultural societies as were disposed to avail themselves of it for trial. It is to be regretted, however, that the lateness of the season at which the seed arrived prevented many persons disposed to test its adaptability to the soil of Western Canada from giving it a trial. The seed on hand will, however, retain sufficient vitality for next year's sowing, when it is expected that many will enter upon its cultivation. Where it has been sown upon a small scale in this vicinity, although at too late a period to ensure success, and under other unfavorable circumstances, the yield has been satisfactory.

In order more fully to secure all the advantages of the flax crop it would be necessary to procure suitable machinery for rough dressing to fit it for exportation, as well as that necessary for extracting the ore. With this object in view, communication has been opened with J. H. Dickson, Esq., London, England, a gentle-

man engaged for over thirty years in the flax business, under whose directions the most improved machines for preparing flax and East India fibres have been constructed, and for which patents have been secured by him. This gentleman has now in course of publication a work on the "cultivation and preparation of flax and Indian fibres," which will be a valuable acquisition to our agricultural knowledge, and cannot fail to produce beneficial and lasting results when practically carried into effect. This book, besides giving all the necessary information for the production of flax, from the preparation of the ground on which it is to be grown until it is fitted for the loom, also gives many instances of the result or produce of flax growing in England and Ireland, two of which I shall quote to show the profit of flax culture over any other cultivated crop. At page 43, we read that "on the farm of His Royal Highness the Prince Consort, 4½ acres were sown with flax, which produced 252 stones of clean flax, fit for spinning, and 76½ bushels of seed, which, if sold at current prices, would realize for flax at nine shillings per stone, and for seed at eight shillings per bushel, the handsome sum of £145 16s, or equal to £32 8s the acre. At the same page of his work we find the following: "Extraordinary produce—Mr J. Corry, of Mullanburry, Dromore, Ireland, sowed last season, (1857) fifteen pecks of Riga flax seed in one acre and a half a rood of his farm, the produce when scutched at the Fintona flax-mills, amounted to 120 stones payable; for this he received nine shillings per stone in the Armagh market, thus realising a sum of £54," equal to £48 per acre. The Board of Agriculture has ordered a copy of the book referred to for each county in Upper Canada with a view to disseminating its valuable contents among our farmers.

It is confidently hoped that this Annual Exhibition of the Industry of Western Canada, now near its closing, has been productive of some good to the farmers, their families, and others who have visited it, and that the pains taken and expenses incurred by the people of this city and neighborhood to furnish the most ample accommodation, and to render it both attractive and instructive will have its beneficial results, and be an incentive to greater exertions at all our future exhibitions.

The chief aim of the Agricultural Association is to encourage a right spirit of emulation among the industrial classes, with a view to their permanent benefit, and to bring to public notice all the improvements which our enlightened times have produced, whether in improved stock, agriculture and horticultural products, arts and manufactures, works of art, and new and useful inventions, and to mark their approval by suitable rewards, in the granting of diplomas and premiums, and thus to afford encouragement to still greater efforts.

OFFICIAL NOTICES.

JOURNAL OF EDUCATION AND AGRICULTURE.

We have received communications from some of the Agricultural Societies, wishing to know whether it is supposed that they, as Societies, are to pay for the copies of the *Journal* forwarded for the use of these Societies. Of course, if the Societies agree to do so, it is in our opinion a most legitimate application of their funds, and several of them have in this capacity ordered an additional number. The pages of the *Journal* are thrown open to their use as well as to the Teachers, and it is but right and proper that they should bear their share in its support and encouragement. The Publishers, we believe, are still minus the amount required for defraying the mechanical expense.—Like many such periodicals in other countries, there is no Legislative Grant for its support.

AGRICULTURE IN NOVA SCOTIA—ANSWERS TO QUERIES.

We have received replies to the Circular we issued on this subject from nearly forty Societies, and we now proceed to say a few words on each of the queries *seriatim*, embodying as much as we can of the replies forwarded. The first

query was to the following effect;—*What is the present condition of Agriculture in your district—State whether you consider it stationary or progressive during the last few years, and what causes have mainly operated in the case of the one or the other?*

All the replies go to show that, on the whole, decided progress has been made in Agricultural pursuits. A few lament that greater progress, comparatively speaking, has not been effected, and a few more the indifference and apathy that prevailed in reference to Agricultural improvements;—but all seem ready to admit that some progress has been made, and in not a few instances that this progress has been great and marked. Like every other branch in the social economy Agriculture has had its ebbings and flowings, its elevations and depressions, but no one who knows anything of what Nova Scotia was twenty-five years, and, still more, fifty years ago, and compares its condition then with what it is now in farming operations, will hesitate to admit that very decided and palpable improvements have been effected. The first grand impulse that Agriculture received in this country, as is well known, was the writings and efforts of *Agricola*. These, with Lord Dalhousie at their head, originated the whole organization of the Agricultural Societies, with the Central Board. And just when the print of these efforts was beginning to decline a fresh impulse was imparted by the appointment of Principal Dawson to the office of Superintendent of Education, with a special commission to direct the attention of Teachers and others to the matter of Agricultural Chemistry. Dr Dawson lectured extensively throughout the Province in connection with this subject, and by his thorough acquaintance with the cognate sciences infused new life and vigor into the minds of many of our farming population. The substance of the lectures that he delivered, on these occasions, was afterwards published and widely circulated and read. Again, all these movements were greatly aided and abetted by the arrival of Sir Gaspard Le Marchant as Governor of the Province.—That gentleman manifested at the commencement of his rule in the Province the deepest interest in the cause of Agriculture, and encouraged it in every possible way, by Agricultural and Industrial Exhibitions, by the importation of Stock of all kinds, and by the dissemination of scientific intelligence. All these stimuli have proved bright spots in our Agricultural history, and, though they may have been sometimes succeeded by temporary intervals of quiescence, the general progress has been unquestioned and unquestionable. Indeed, notwithstanding all the boasted progress in Agriculture in Canada and in some of the Northern States of the Union, we believe that Nova Scotia in this respect will compare most favorably with any one of them, if, in some respects, it does not rise superior.

The answers to the queries referred to go to prove that this progress is very observable in the following particulars:

1st. In the growing conviction that attention to the Farm all the year round is what will not only make it pay, but pay well.

2nd. In the more scientific cultivation of the soil, and in the more careful attention paid to the various manures.

3rd. In the partial adoption of the system of rotation of crops.

4th. In the steadily increasing growth of green crops.

5th. In the improved breeds of cattle.

6th. In the greater use of improved farming implements.

Various causes are assigned for this improved condition of things. 1st. There is the progressive advancement of society in general; 2nd. The diffusion of more enlightened and scientific views on the whole subject; 3rd. The failure in the potatoe and wheat crop has stimulated to exertion and made more skillful and industrious farmers; 4th. The improved condition of the market and the increased means of transit; 5th. The Agricultural Grant. The utmost unanimity seems to prevail throughout the country in reference to the utility of this Grant, and it is earnestly hoped that the next Session of the Legislature will restore it to its original amount, will resuscitate the Central Board with more thorough organization and efficiency. The Governor has publicly declared his determination to throw his powerful influence into this cause, so that, we trust, a bright prospect is before us. We shall resume this subject in our next.

111.—AGRICULTURAL INTELLIGENCE.

LORD MULGRAVE'S SPEECH AT THE MASONIC BANQUET.

It affords us the highest possible satisfaction to give insertion to the speech of Lord Mulgrave, delivered two or three weeks ago, at the Masonic Banquet. We feel satisfied that the Agricultural interest throughout the Province will hail with gratitude the announcement that it is his Lordship's intention to take up the subject of Agriculture, and ere long to bring forward a measure with a view to the improvement of this branch of the public service. We have reason to believe that Lord Mulgrave possesses very considerable acquaintance with this subject, both in its theoretical and practical aspects, and we are delighted to observe that his Lordship intends to give the Province the benefit of that acquaintance. We have no doubt that his Lordship's influence and example will impart a powerful stimulus to farming operations throughout the Province:—

“ Lord Mulgrave, after referring to the enthusiastic manner in which his health had been received, and to the kind allusions which had been made to his efforts to become acquainted with every section of the Province, expressed the personal gratification he had experienced in visiting the various counties of Nova Scotia. Although he was delighted to find the industry and enterprise that was manifested by the inhabitants, evincing a determination to make their country occupy the position which nature had evidently intended it should, when she scattered her gifts in such profusion over the face of the country, yet he could not but feel that the soil especially was susceptible of much greater development and higher cultivation. An immense advance had recently been made in developing the rich mineral resources of Nova Scotia—efforts which at no distant day bid fair to be of the utmost importance to the Province, and he (Lord Mulgrave) wished to see the agricultural interest keep pace with all other improvements, as after all upon it and to it the country must look mainly for real and substantial advancement. No one, of course, looked for perfection in a comparatively new country, yet he could not but think that a higher degree of science might now be introduced into this most important branch of industry. He had seen such large and beneficial results flowing from efficient and well directed operations of agricultural societies, that he was anxious to see the same means tried out effectually here.—This might not be the most appropriate place to introduce a

subject of this kind, but as his opportunities of addressing the public were very limited, he wished to call attention to this matter, as he intended at an early day to bring forward a proposition to advance the agriculture of the Province, in which he confidently relied upon the cordial support of all parties and classes of the population. He could not but think that some mistakes had been made in previous efforts of the same kind, or they would have been attended with greater success, to only one of which he would allude—that of the too brief notice which preceded agricultural fairs.—Unless two or three years notice were given it could not be expected that any thing like desirable competition could be brought into play. His Excellency concluded his observations by a feeling allusion to the early departure of his valued friend Sir Houston Stewart, whose long acquaintance with Halifax had endeared him to every section of the community."

EXHIBITIONS.

The season of Autumn Agricultural Shows and Fairs is now nearly or quite over for the present year. From early in September to the present time, probably from a dozen to twenty five or thirty county or township exhibitions have taken place every week in one part or other of the Province. Some persons indeed are of opinion that we have a great deal too many of them, and that there would be both economy and advantage in many instances in combining several of the small county or township shows into one of larger pretensions. Let this be as it may, it is beyond question that much progress and benefit has resulted from these annual gatherings and exhibitions of skill; and if any decided improvement can be effected in the mode of conducting them, it may reasonably be anticipated that correspondingly increased advantages would be gained. The farmer whose whole summer has been one continued season of active and laborious industry, not unmingled with occasional anxiety and suspense, having at length secured his crops in his barns or stacks, threshed out and disposed of so much of them as his immediate occasions require, and got his fall wheat satisfactorily put in the ground, fenced, drained, &c., looks forward to the visits of himself and family to the township, county or provincial show as a season of leisure and relaxation from their long sustained labor. The mind there receives some pleasurable sensations in the change of scene and of incidents from those of every day occurrence.—Friends are met with, perhaps, who had not been seen since on a similar occasion the preceding year. Some superior animal, agricultural product, improved implement, or specimen of mechanical skill meets the eye of the farmer or the mechanic, which convinces the former that his live stock, his products, or his farm implements are not all they should be, and the latter that he must make another trial before he can pronounce his own work or manufacture quite perfect. For these reasons and numerous others, the autumn exhibition season is to many persons one of the most interesting and pleasurable which occurs during the year. In fact, it is to very many, owing to the nature of the farmer's occupation, his peculiar dependence upon the seasons, &c., almost the only term of relaxation and enjoyment which they indulge in, apart from their ordinary occupation. The farmer's life and occupation affords him, in the study of his art, and in the unfolding of the beauties of nature which he sees every day around him, not to mention numerous other advantages of his position, material, if properly improved, for as pure enjoyment and as high mental cultivation as any other profession. But even supposing the home circumstances fully turned to advantage—which is, we fear, in few cases—the farmer, as well as other people, requires an occasional change of scene and of occupation. And when he is from home he should not be satisfied with merely looking at something which he is convinced is much better than anything he has himself, and then go back and forget all about it; he should make a note of it and be determined at the very first practicable moment to have something as good or a great deal better.—*Canadian Agriculturist.*

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